

Appln. No. 09/966,847
Supp. Amdt. dated December 2, 2004
Reply to Office action of June 25, 2004

Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 (Currently amended). A hydrophilic inclusion complex consisting essentially of nano-sized particles of a water-insoluble lipophilic compound surrounded by and entrapped within an amphiphilic polymer, wherein said inclusion complex renders said lipophilic compound soluble in water-and-bioavailable.

2 (Currently amended). The hydrophilic inclusion complex as recited in claim 1, wherein said lipophilic ~~particles comprise organic materials~~ compound is selected from the group consisting of pharmaceutical compounds, food additives, cosmetics, agricultural products and pet foods.

3 (Currently amended). The hydrophilic inclusion complex as recited in claim 2, wherein said lipophilic ~~particles are~~ compound is selected from the group consisting of vitamins, antibiotics and hormones.

4 (Currently amended). The hydrophilic inclusion complex as recited in claim 255, wherein said lipophilic ~~particles are~~ compound is a pharmaceutical compounds.

5 (Currently amended). The hydrophilic inclusion complex as recited in claim 1, wherein said nano-sized

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~~hydrophilic lipophilic~~ particles of said lipophilic compound
interact with said amphiphilic polymer via the formation of
non-valent bonds.

6 (Currently amended). The hydrophilic inclusion
complex as recited in claim 1, wherein said amphiphilic
polymer and said ~~lipophilic~~ particles of said lipophilic
compound form an inclusion polymer complex having a
hydrophilic-lipophilic balance that renders said inclusion
~~polymer complex~~ soluble in water.

7 (Currently amended). The hydrophilic inclusion
complex as recited in claim 1, wherein said nano-sized
~~insoluble lipophilic~~ particles of said water-insoluble
lipophilic compound are in the range of from 10-100 nanometers
in size.

8 (Currently amended). A method for forming a
hydrophilic inclusion complex consisting essentially of nano-
sized particles of a water-insoluble lipophilic compound
surrounded by and entrapped within an amphiphilic polymer, the
method comprising the steps of:

a. ~~preparing a polymer solvent comprising solution~~
~~of said amphiphilic polymer molecules in an aqueous solvent,~~
~~wherein the amphiphilic polymer molecules in said aqueous~~
~~solvent consists of a single amphiphilic polymer,~~

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~~b. preparing a carrier solvent comprising highly diluted solution of said lipophilic compounds, in a non-aqueous solution solvent,~~

~~e. adding said carrier a low concentration solution of said lipophilic compound in a non-aqueous solvent to a turbulent zone in an aqueous solution of said polymer solution heated to a temperature above the boiling point of said non-aqueous solvent, to form an emulsion,~~

~~d. dispersing said lipophilic compounds in said emulsion by adding said emulsion said to a turbulent zone in said polymer solution wherein said lipophilic compounds form nano sized lipophil compounds in a nano emulsion,~~

~~e. removing said carrier solvent from said nano-emulsion, wherein said polymer molecules surround said nano-sized lipophil particles to form said hydrophilic inclusion complex,~~

wherein said hydrophilic inclusion complex consists essentially of said nano-sized particles of a said water-insoluble lipophilic compound surrounded by and entrapped within an said amphiphilic polymer, and

wherein said inclusion complex renders said lipophilic compound soluble in water and bioavailable.

9-10 (Cancelled).

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11 (Currently amended). The method as recited in claim 8, wherein said ~~lipophil solution is comprised of~~ lipophilic compounds is selected from the group consisting of vitamins, antibiotics and hormones.

12-13 (Cancelled).

14 (Previously amended). The method as recited in claim 8, wherein said amphiphilic polymer comprises natural polysaccharides.

15 (Currently amended). The method as recited in claim 8, wherein ~~said removing step further comprises the step of evaporating said carrier the remaining non-aqueous solvent~~ after formation of the inclusion complex is evacuated by via vacuum evaporationdistillation.

16-36 (Cancelled).

37 (Currently amended). The process as recited in claim ~~33~~8, wherein said lipophilic compound is an ~~selected from the group consisting of~~ organic materials selected from the group consisting of drugs, food additives, cosmetics, agricultural products and pet foods.

38-53 (Cancelled).

54 (New). The hydrophilic inclusion complex as recited in claim 1, wherein said amphiphilic polymer comprises natural polysaccharides.

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55 (New). The hydrophilic inclusion complex as recited in claim 1, wherein said hydrophilic inclusion complex is bioavailable.

56 (New). The hydrophilic inclusion complex as recited in claim 2, wherein said lipophilic compound is selected from the group consisting of peptides and polypeptides, nucleotides and co-ferments, vitamins, steroids, porphyrins, metal-complexes, purines, pyrimidines, antibiotics and hormones.

57 (New). The method as recited in claim 8, wherein said lipophilic compound is selected from the group comprising of peptides and polypeptides, nucleotides and co-ferments, vitamins, steroids, porphyrins, metal-complexes, purines, pyrimidines, antibiotics and hormones.

58 (New). The method as recited in claim 8, wherein said amphiphilic polymer is selected from the group consisting of natural polysaccharides, polyacrylic acid and its derivatives, polyethylene imine and its derivatives, polymethacrylic acid and its derivatives, polyethylene oxide and its derivatives, polyvinyl alcohol and its derivatives, polyacetylene derivatives, polyisoprene derivatives and polybutadiene derivatives.

59 (New). The method as recited in claim 8, wherein said hydrophilic inclusion complex is bioavailable.